

4.0 Line Management and Oversight

Management of ES&H for DOE work at Portsmouth flows down from the DOE Environmental Management and Nuclear Energy program offices through OR and the DOE Portsmouth Site Office to the contractor and subcontractors. The DOE presence was formalized into a site office in 1989, now staffed with eight technical personnel, an administrative person, and the Site Manager augmented by two persons from Spectrum. Bechtel Jacobs manages safety and health programs and performance through various organizations and mechanisms, including those of subcontractors performing work activities. OR and Bechtel Jacobs have developed and are implementing an ISMS program that was subjected to a DOE Phase I and II verification process (program adequacy and implementation) in January 2000.

DOE and Bechtel Jacobs prioritization and funding practices have been successful in allocating sufficient resources to Plant cleanup, and much progress has been made in characterizing and remediating environmental problems. PORTS has been aggressive in measures to prevent offsite groundwater contamination and in the disposition of Plant wastes both through onsite treatment and shipment off site.

The Portsmouth Site Office has established procedures for performing ES&H oversight. Site Office Enrichment Facilities and Environmental Management staff members have performed facility inspections and industrial hygiene surveillances that have identified deficiencies for which contractor corrective actions have been tracked and verified to closure. The Portsmouth Site Office also provides constructive comments on occurrence report submittals and directs revisions to improve quality. In February 2000, the management and integration contract was modified to include an additional management evaluation fee that will specifically address performance areas such as ES&H, quality, business operations, and stakeholder relations. Fifteen percent of the \$1 million fee for fiscal year 2000 has been designated for ES&H performance. General ES&H performance expectations and deliverables have been issued.

OR, the Portsmouth Site Office, and Bechtel Jacobs have developed and taken corrective actions as a result of the issues identified by the Oversight investigation at Paducah last fall. OR has developed a new ES&H oversight program, codified as an OR order, and the Portsmouth Site Office is reviewing and revising oversight policies and processes. In addition, Bechtel Jacobs has also initiated a number of actions to strengthen its requirements management processes, including mapping requirements within the prime contract to Bechtel Jacobs's command media, reviewing existing subcontracts' requirement specifications, and formalizing Bechtel Jacobs's standards management processes to reflect current management and integration practices. Many of these actions were ongoing during the Portsmouth investigation.

Bechtel Jacobs has clearly defined many of its oversight responsibilities and programs in a set of recently updated corporate-level procedures, including project readiness reviews, performance monitoring (surveillance and walkdowns by the P/QA organization), management assessments, issues management, performance improvement, independent assessment, and occurrence reporting. Many of these procedures are in the initial stages of implementation. Some management assessments are identifying programmatic problems, as shown by the recently completed hearing conservation program assessment. The Integrated Corrective Action Tracking System (the Bechtel Jacobs issues management program) is being effectively used as a tool to track the closure of deficiencies identified by the P/QA organization and by external organizations. Site ES&H staff are performing routine walkthroughs of DOE areas, identifying, documenting, and tracking to closure many ES&H deficiencies. PORTS is revising ES&H procedures and practices to consistently capture compliance deficiencies on non-conformance reports as required by the corporate Bechtel Jacobs management assessment procedure.

Bechtel Jacobs took several important steps to assure that the Plant services, maintenance, and waste operations subcontractor was prepared to safely proceed with work. Program descriptions

and procedures were reviewed, and meetings with this subcontractor were held to convey expectations. However, the steps taken were not sufficient, because some important controls were not in place. Steps taken to assure subcontractor readiness for smaller projects, such as the standpipe replacement project for the X-2230 north holding pond, were more effective.

Positive actions that will improve ES&H training at PORTS have been taken by both Bechtel Jacobs and USEC. Recently Bechtel Jacobs purchased 42 training modules and associated lesson plans from USEC that Bechtel Jacobs plans to update and improve during calendar year 2000 by adding additional site-specific information. Also, the USEC protective force plans to continue to complement its training program with site-specific information on Plant safety and health hazards prepared by emergency management organization personnel.



X-740 Waste Oil Storage Facility

Bechtel Jacobs Company and OR took important steps to manage the recent transition of waste management and Plant services work to a subcontractor. Subcontractor Technical Representatives were assigned and trained, and OR audited the Subcontractor Technical Representatives program. Bechtel Jacobs included requirements for program submittals, including safety, waste management, training, and quality assurance programs, in Exhibit I of the WASTREN contract, and submittals were reviewed by Bechtel Jacobs before granting authorization to proceed with work. A confirmatory review by the Site Operations Review Committee found no unreviewed safety questions. Procedures to be used by this new subcontractor were reviewed and accepted by Bechtel Jacobs, and compensatory measures were put in place for incomplete procedures. Nonetheless, as discussed later in this

section, some procedures and important processes were not in place when Bechtel Jacobs authorized the subcontractor to start work.

The evolution of DOE activities at Portsmouth during the 1990s from a production organization to a much smaller environmental restoration and management function, as well as the change from a management and operations to a management and integrating contractor organization in 1998, has presented challenges to line management and oversight ISMS functions. Despite positive management and oversight performance by the line, as highlighted above, the investigation team identified many weaknesses in implementation of key elements of line ES&H oversight outlined in the Department's ISMS policy (e.g., lack of a "robust, rigorous, and credible" contractor self-assessment program, insufficient DOE operational awareness, performance, and readiness reviews, and insufficient Headquarters line monitoring and reviews of field performance). Further, the investigation team identified instances where the guiding principles of integrated safety management are not fully integrated into policies and procedures and have not been effectively implemented by the program offices, OR, the DOE Site Office, Bechtel Jacobs, or its subcontractors:

- *Line Management Responsibility for Safety:* DOE management has not set sufficiently high expectations for compliance with DOE ES&H requirements, and compliance issues were evident at PORTS. Some important DOE nuclear safety orders or equivalent set of standards were not required by the DOE contract with Bechtel Jacobs, and other requirements that were in the contract were not enforced or followed. There is little evidence that the DOE Office of Environmental Management or OR has demanded compliance. The recent ISMS verification by OR did not identify many of the existing compliance issues for PORTS that were identified by the investigation team.
- *Clear Roles and Responsibilities:* Roles and responsibilities for ensuring safety have not been defined. Guidance and direction from DOE Headquarters elements for the safety and health elements of the transition to a management and integrating contract have been lacking. Formal direction from OR defined the Site Office oversight role as focusing on measuring performance instead of day-to-day oversight. This direction has contributed to a lack of sufficient operational

awareness, review, assessment, and appraisal of contractor performance by the Site Office and OR. Further, safety and health performance metrics for Bechtel Jacobs and its subcontractors have not been clearly delineated. Specific Bechtel Jacobs roles and responsibilities for performing assessment and monitoring of ES&H activities and for the documentation and correction of deficiencies are not always clearly defined.

- *Competence Commensurate with Responsibilities:* Deficiencies exist in cross-training of Portsmouth Site Office personnel to enhance safety and health oversight by the small staff. The lack of health physics expertise has adversely impacted performance. Weaknesses in safety and health experience and training for Bechtel Jacobs subcontractors were also evident.
- *Balanced Priorities:* Although priorities for environmental restoration and management have clearly been established and maintained, essential elements of DOE and Bechtel Jacobs safety and health programs, especially monitoring and appraisal, have not been afforded sufficient attention or resources. This is of special concern because PORTS has eight designated hazard category 2 nuclear facilities.
- *Identification of Safety Standards and Requirements:* DOE has not imposed sufficient requirements on Bechtel Jacobs to assure an acceptable level of performance in some areas. Performance deficiencies in the areas of readiness reviews, conduct of operations, training, environmental radiation protection, and occupational medicine can be attributed to unclear or insufficient requirements in these areas.
- *Operations Authorization:* Bechtel Jacobs authorized the services, waste management, and operations subcontractor to proceed with work without adequate assurance of readiness in ES&H, and some important controls were not in place.

The issues in this section address fundamental weaknesses in the processes by which DOE conducts line oversight of Bechtel Jacobs, Bechtel Jacobs conducts line oversight of its subcontractors, and both organizations ensure effective implementation of all DOE regulatory requirements.

Issues

Issue 16. OR has not conducted effective oversight of ES&H or ensured that Bechtel Jacobs and its subcontractors effectively implement all applicable DOE and regulatory requirements.



X-747G Northeast Contaminated Material Storage Yard

- *Inadequate Requirements Management.* ES&H performance has not been acceptable in several areas in which the applicability of key DOE directives or equivalent OSHA regulations has not been made clear. A number of applicable DOE directives have not been included in the work smart standards for Bechtel Jacobs, but have been classified as guidance for flowdown to subcontractors. Most of these directives establish DOE requirements and expectations for contractor management and administrative systems. Because some of these directives were not fully addressed through other equivalent standards or other performance expectations, requirements were sometimes either omitted or not clearly captured in ES&H programs and procedures. For example:
 - DOE Order 5480.23, which requires annual SAR updates, was not imposed. Expectations for updates were not specified, DOE has not provided funds for an update, and the SAR has not been updated since 1996.
 - DOE Order 440.1A, *Worker Protection Management*, was not imposed on Bechtel Jacobs Company by DOE, and key provisions of this order have not been addressed sufficiently to inform medical professionals of Plant hazards.
 - DOE Order 425.1 and DOE STD 3006-95, which collectively address readiness reviews for

startup and restart of nuclear facilities, were not included in the Bechtel Jacobs contract. A review of the subcontractor's readiness to assume waste management and Plant services activities did not identify existing deficiencies. In addition, OR corrective actions identified in the December 1999 "Report on Implementation Status of DOE Order 425.1A, Startup and Restart of Nuclear Facilities," to modify contracts to include DOE Order 425.1A and ensure that contractors have adequate procedures for facility or activity startup/restart, have not yet been implemented.

- DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*, was not imposed by the Bechtel Jacobs contract, nor was an equivalent set of requirements included in the contract. The rigor of conduct of operations for the operation of PORTS hazard category 2 nuclear facilities does not meet DOE expectations. Deficiencies were apparent during the operational transition to the new Plant services, maintenance, and waste operations subcontractor. Bechtel Jacobs allowed this subcontractor to assume operations without an established program for conduct of operations and unreviewed safety question determinations; this is contrary to the Plant TSRs and the contract.
- DOE Orders 5400.1, *General Environmental Protection*, and most requirements in DOE Order 5400.5, *Radiation Protection of the Public and the Environment*, were not established by OR as applicable standards for activities conducted at PORTS. Weaknesses were evident in the implementation of the DOE environmental surveillance program at Portsmouth. The level of performance in these areas does not meet DOE expectations for either the operation of hazard category 2 nuclear facilities or a site with contamination in the local environment where highly accurate, legally defensible conclusions are needed regarding the impact of DOE operations. The SAR for Portsmouth nuclear facilities specifies conformance with these standards to address identified operational hazards. Specific concerns in these areas are discussed in Section 2 of this report.
- *Insufficient Operational Awareness, Performance Monitoring, and Appraisal*. There is a lack of oversight and direction by the Headquarters program

offices and OR, and by a general lack of rigor in the execution of the oversight function in the Portsmouth Site Office. Since 1997 there have been no formal safety or health appraisals by OR or by DOE Headquarters program offices, excluding an ES&H and Quality Assurance "assist visit" in November 1999, which was driven by the issues identified by the Oversight investigation at Paducah last fall and the ISMS verification in January 2000. Further, there was no evidence that the Portsmouth Site Office had requested safety and health appraisal assistance from OR in recent years. OR's direction to the Portsmouth Site Office regarding contractor oversight under the management and integrating contract, outlined in a January 1998 letter, was that oversight emphasis would be on "establishing policies, standards, baselines, and objectives and measuring performance rather than focusing on day-to-day oversight and control." However, this reduced emphasis on day-to-day oversight was not accompanied by increased emphasis on ES&H performance objectives or monitoring. Evaluation guidance and criteria for determining the ES&H portion of the management evaluation fee are minimal and generalized. In September 1999, the OR Manager issued additional guidance regarding expectations for DOE staff as they work with contractors in developing and implementing integrated safety management, including maintaining "a vigilant day-to-day operational awareness." However, there was no evidence of any change in Portsmouth Site Office practices as a result of this guidance. In January 2000, the OR Assistant Manager for Environmental Management identified additional actions needed to better define staff roles and responsibilities.

The OR combined Phase I and II verification of the ISMS for Bechtel Jacobs illustrates the investigation team's concern about the lack of rigor in DOE line oversight. The findings of this investigation team are not consistent with the conclusions of the verification team that the ISMS verification objectives and criteria were met as they apply to PORTS. Specifically, the investigation team concluded that, in many cases, Phase I ISMS program implementing documents were not yet adequate and that implementation deficiencies precluded a determination that related Phase II criteria and objectives were met.

The oversight activities of the Portsmouth Site Office have not been rigorously planned, executed, or documented, and the technical staff has not been held accountable for ES&H oversight. Although the walkthrough and surveillance activities of some staff members have been well documented, with findings

formally communicated to the contractor and corrective actions tracked to closure, this is not the general practice in the Portsmouth Site Office. Consequently, there is no documented evidence of compliance with DOE Portsmouth Site Office oversight procedures in construction inspections and lessons learned. There is no tracking system to ensure that annual walkdowns or walkthroughs are performed for all facilities as required by Portsmouth DOE Site Office procedures.

Functional or management appraisals have not been performed in recent years as required by procedures, and few formal surveillances that evaluate safety and health programs have been performed. Long-range planning or scheduling is not performed to ensure that all applicable functional areas are assessed on a timely and prioritized basis. The Portsmouth Site Office deficiency tracking system has fallen into disuse. In the last few months, an attempt has been made to track open items on a computer database. However, only open items are tracked, and no information on closed issues is retained. Routine or formal trending of deficiencies is not required by Portsmouth Site Office procedures, and any effort to perform such analysis would be hampered by the inconsistent documentation of walkthrough findings and the need to manually extract data from individual walkthrough reports that are available.

In general, DOE reviews of Bechtel Jacobs occurrence report submittals have not been sufficiently rigorous, and Bechtel Jacobs has not been held accountable for continuing weaknesses in their occurrence reporting process. Although occurrence report reviews have improved, additional attention is needed, especially regarding the description of the event, identification of root causes, and the adequacy of corrective actions.



X-749A Classified Material Burial Ground

In 1998, the Ohio Area OSHA office notified the DOE Portsmouth Site Office of a worker's allegation of safety hazards and unsafe work practices in the lithium warehouses that are leased to a private company by DOE. The Portsmouth Site Office' response to the OSHA letter detailing the alleged hazards stated that DOE had jurisdiction of this matter and would evaluate the allegations and make necessary corrections. The DOE Portsmouth Site Office did not document the results of that investigation or the disposition of the complaint. Further, the Portsmouth Site Office has not documented routine annual walkthrough inspections of these warehouses. The investigation team identified several conditions and practices, identical or similar to the 1998 allegations, during an inspection of these warehouses.

- *Training Deficiencies.* The DOE Portsmouth Site Office has not implemented a formal program to ensure that personnel assigned to oversee contractor performance maintain adequate proficiency in areas related to safety and health. The DOE Portsmouth Site Office review of personnel proficiencies was performed in accordance with the DOE technical qualification program, but it has not resulted in a process to enable DOE staff to achieve current working knowledge in critical areas of ES&H. A training requirements matrix is not rigorously maintained. DOE personnel generally determine their own individual ES&H training requirements and the associated schedule, and supervisory involvement is limited to concurring on individual development plans. Informal guidance provided by the resident DOE industrial hygiene specialist to Portsmouth Site Office personnel focuses on maintaining current knowledge of safety and health in basic compliance areas, including course instruction in general employee, radiological worker, and hazardous waste operations worker training that is reflected in individual development plans. However, DOE personnel do not aggressively pursue more in-depth instruction in safety to complement their training in these basic compliance areas. Such training could include training that is required by Federal regulations, such as fall protection and confined space entry, and other safety-related training areas, such as hoisting and rigging, and polychlorinated biphenyl (PCB) training. Additionally, cross-training in other disciplines to improve the effectiveness and efficiency of the Portsmouth Site Office staff in performing its oversight function is not vigorously

encouraged. Neither OR nor the Portsmouth Site Office ensures that Bechtel Jacobs and the subcontractor are meeting the intent of the requirements contained in American National Standards Institute (ANSI) Standard 8.20, "Nuclear Criticality Safety Training." Consequently, subcontractor personnel training qualifications have not been adequately reviewed and correlated to job assignments, and individuals have started work without sufficient training.

Issue 17. Bechtel Jacobs oversight of ES&H performance has not been effective in ensuring that subcontractors properly implement all required DOE and Federal regulations.

- *Inadequate Requirements Management.* The Bechtel Jacobs subcontractor formation teams and procurement process do not always incorporate current and consistent requirements into subcontracts, and Bechtel Jacobs Subcontractor Technical Representatives do not ensure that applicable subcontractor requirements are consistently delineated in subcontractor submissions. For example, Exhibit E, Section 10200, "Subcontractors Technical Specifications for WASTREN," identifies additional DOE directives and requirements selected by the Bechtel Jacobs subcontractor formation team to tailor requirements to the proposed work. However, the resulting list of work smart standards includes superseded and outdated DOE directives, prior management and operations contractor procedures, and regulatory standards and guides that are not all appropriate for hazard category 2 nuclear facilities. The WASTREN ES&H Management Plan, dated December 1999, addresses implementation of DOE ES&H orders and Federal regulations in Section 4.0 to meet subcontract requirements flowed down by Bechtel Jacobs. However, it does not clearly identify those DOE directives for which compliance is mandatory. The investigation team identified requirements from DOE Orders 440.1A, 5400.1, and 5400.5, that are clearly specified in the Plant services, maintenance, and waste operations subcontract, but were not being effectively implemented.
- *Premature Authorization for the Subcontractor to Proceed with Work.* Bechtel Jacobs authorized the new Plant services, maintenance, and waste operations subcontractor to proceed with work in

January 2000 without adequate assurance of readiness in ES&H. No formal transition plan was developed. Bechtel Jacobs authorized work to proceed before some important processes and procedures were in place. For example:

- Processes were not in place for maintaining document change control, assuring that assigned workers were trained, and assuring the flowdown of requirements from Bechtel Jacobs to the subcontractor. Additionally, no conduct of operations program existed as required by the TSR and SAR.
- Significant procedural deficiencies also existed. For example, a new subcontractor work control procedure was issued, but workers were not trained in the use of this procedure. Further, the investigation team determined that this procedure was deficient in several areas. Bechtel Jacobs did not assure that this subcontractor understood the expectations regarding preparation of procedures, and work was started with incomplete procedures. A heavy procedure development workload following startup diverted the attention of subcontractor health and safety managers from their normal duties, such as managing program implementation.
- Program implementation deficiencies were apparent in the weeks following startup. The subcontractor ES&H Officer and some supervisors lacked knowledge of ES&H programs and requirements, and some requirements were not being met. Further, the investigation team observed examples of poor work practices on the part of the Plant services, maintenance, and waste operations subcontractor, as well as a failure to follow procedures in work activities.
- *Insufficient Operational Awareness, and Performance Appraisal.* There are many program and implementation weaknesses in Bechtel Jacobs's operational awareness and appraisal programs. Bechtel Jacobs oversight of ES&H programs has not identified important implementation weaknesses. The investigation team identified numerous weaknesses in procedural processes, industrial safety, industrial hygiene, and work planning and control. These weaknesses resulted in two

temporary suspensions of work for one subcontractor during the investigation period. Fragmented Plant-level implementing instructions for management assessments (including Subcontractor Technical Representatives) do not provide clear and consistent guidance for determining whether deficiencies should be escalated to more formal deficiency reporting and tracking systems. As a result, deficiencies have been documented and dispositioned inconsistently, primarily using informal manual or computerized systems established by individual assessors or organizations. No central file is maintained for these ES&H deficiencies. Many deficiencies identified by the ES&H organization that meet the definition of an “issue” in the Bechtel Jacobs issues management program have been identified at PORTS, but they are not identified as non-conformance reports or entered into the Issues Corrective Action Tracking System as required by procedure. Further, the corporate Non-Conformance procedure does not require a significance review to establish whether a root cause analysis is required; this is in conflict with requirements in the corporate Issues Management procedure. Thus, the same deficiency receives a different level of review for significance and determination of the need for root cause analysis, depending on the reporting vehicle the assessor chooses. These informal, fragmented, and inconsistent systems for documenting deficiencies have inhibited effective analysis and trending of ES&H performance and may not ensure that more serious deficiencies get the proper level of management attention. Revisions of Plant procedures for implementing corporate-level management assessment procedures, which were initiated during this investigation, were not complete. There was insufficient data to determine the effectiveness of these changes.

- Bechtel Jacobs oversight procedures do not clearly identify Subcontractor Technical Representatives’ responsibilities for reviewing the ES&H performance of subcontractors or documenting and resolving deficiencies. The investigation team observed Subcontractor Technical Representatives evaluating some ES&H conditions and activities during their walkdowns. However, the results of these reviews were not fully documented in their daily reports, and ES&H deficiencies were not captured to ensure correction and to support

trending and performance monitoring. Bechtel Jacobs’s corporate Independent Assessment group identified the same deficiency in its assessment of ISMS at East Tennessee Technology Park in January 1999, but corrective actions have not been applied to PORTS.

- The investigation team identified that Bechtel Jacobs/WASTREN lockout/tagout procedures did not require verification by workers that equipment is de-energized after application of locks and tags for single-source lockout/tagouts as required by OSHA in 29 CFR 1910.147. This error was not identified by the Bechtel Jacobs annual lockout/tagout management assessment conducted in November 1999.
- The investigation team observed weaknesses in the conduct of surveillances and walkdowns by the P/QA organization that limits their effectiveness. The P/QA walkthrough of the air handler maintenance activity in Building X-7725 did not identify that the equipment was not verified as de-energized after the application of locks and tags. A P/QA surveillance review of the corrective actions from a prior DOE Portsmouth Site Office respirator protection program surveillance did not identify that some of the corrective actions taken were different from the Bechtel Jacobs response to the DOE surveillance.
- ES&H Division subject matter experts conduct walkarounds and document the results, but the scope of the walkarounds, the subject areas and facilities to be reviewed, and the documentation, tracking, and closure of deficiencies are not defined in Bechtel Jacobs procedures. These procedures do not reflect the current requirements of the corporate procedure on management assessment. As a result, monitoring activities are inconsistently performed and documented.
- The Bechtel Jacobs investigation and analysis of occurrence reports is inadequate. The investigation team identified many 1999 event reports where events were not adequately described, causes were not correctly identified or evaluated, corrective actions did not adequately address the causes, and consequently corrective actions were not fully effective in preventing recurrence.



X-106B Fire Training Building

- *Training Deficiencies.* Bechtel Jacobs has not established a system at PORTS to evaluate the ES&H and skills training received by its principal subcontractors. While Bechtel Jacobs is developing an approach for ascertaining the acceptability of training providers, currently subcontractors are only required to submit evidence of having received certain safety and health training. Bechtel Jacobs maintains a training requirements matrix for its personnel for safety and health compliance training that is supplied by USEC. Certain USEC training modules and associated lesson plans are not site-specific, require self-study rather than classroom training, or are not required training for some Bechtel Jacobs personnel. Consequently, not all personnel are adequately trained for their assignments. For example, a Bechtel Jacobs industrial hygienist recently obtained training in ergonomics only as a result of this investigation, and a quality engineer who lacked sufficient and current training and knowledge of ES&H requirements for lockout/tagout and confined spaces was assigned to observe work activities involving those functions. Bechtel Jacobs has extended to June 30, 2000, its USEC contract to provide training services while its subcontractor, Technical and Field Engineering, Inc., revises the 42 training modules recently purchased from USEC.
- Although training records are being reviewed to establish a training requirements matrix, the subcontractor has not established procedures at

PORTS to ensure that its subcontractors' qualifications are commensurate with specific assignments before beginning to work. Furthermore, personnel who are required to obtain certain safety training in accordance with specific procedures have not been identified, such as those using the bloodborne pathogens program procedure adopted from Bechtel Jacobs. The subcontractor has not implemented training procedures for the new work control systems. Therefore, training on the SOMAX computerized work control system was not adequate for supervisory and craft personnel. Additionally, not all subcontractor supervisors provide work area-specific hazard communication training to their personnel as required by the hazard communication procedure, and supervisors and craft personnel lack knowledge of certain lockout/tagout requirements.

Conclusions

Line management has demonstrated success in characterizing and remediating environmental problems and in taking measures to limit offsite groundwater contamination and disposition of Plant wastes. The ISMS program of OR and Bechtel Jacobs has been defined, and progress has been made in establishing or revising implementing programs and procedures and in implementing various elements of an ISMS. However, line management has not ensured that the policy, guiding principles, and core functions of integrated safety management have all been clearly defined and fully integrated into policies and procedures and reflected in performance down to the task level. While some oversight elements are effective in identifying and correcting program and performance deficiencies, many oversight functions, at all levels in the line, have failed to ensure that programs and activities are in compliance with ES&H requirements. Guidance, direction, and participation by the program offices and the OR ES&H and Quality organization have been lacking. The DOE Portsmouth Site Office, Bechtel Jacobs, and subcontractor procedures, planning, and performance of assessments, as well as day-to-day surveillance activities, lack the rigor necessary to identify, document, and correct the ES&H deficiencies identified by the investigation team.

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APPENDIX A

ISSUES FOR CORRECTIVE ACTION AND FOLLOW-UP

Line management is responsible for correcting deficiencies and addressing weaknesses identified in Office of Oversight reviews. Following each review, line management prepares a corrective action plan. The Office of Oversight follows up on significant issues as part of a multifaceted program that involves follow-up reviews, site profile updates, and tracking of individual issues.

This appendix summarizes the significant issues identified during the investigation of current ES&H programs at PORTS. The issues identified in Table A-1 will be formally tracked in accordance with the DOE plan developed in response to the Defense Nuclear Facilities Safety Board Recommendation 98-1, which

addressed follow-up of independent oversight findings. OR, the Portsmouth Site Office, and Bechtel Jacobs need to specifically address these issues in the corrective action plan.

During an investigation, the Office of Oversight team may identify isolated weaknesses and/or minor deficiencies in otherwise effective programs. Although the site needs to correct such weaknesses and deficiencies, the Office of Oversight does not include every identified weakness in the formal tracking system. However, all weaknesses and deficiencies are considered as part of the Office of Oversight follow-up program when evaluating performance and planning future Oversight evaluation and follow-up activities.

Table A-1. Issues Identified During the Investigation of PORTS

IDENTIFIER	ISSUE STATEMENT	REFER TO PAGES
PORTS-INV-00-01	The PORTS environmental restoration program, since the early 1990s, has not fully characterized radiological contaminants, did not integrate DOE radiological requirements into the cleanup program, and developed risk estimates that underestimate radiological risk.	9-12
PORTS-INV-00-02	The migration of contaminants from the X-749 landfill to the south is not adequately monitored.	12
PORTS-INV-00-03	Legacy LLW and scrap/surplus material containers and storage areas are not consistently maintained, and responsibility for managing some buildings with abandoned equipment is not clear.	13-14
PORTS-INV-00-04	The DOE radiological environmental surveillance program design, implementation, and reporting at PORTS do not currently meet the requirements of DOE Orders 5400.1 and 5400.5 and established industry guidance, including a technical basis that is inadequate for the current level and method of implementation.	14-16
PORTS-INV-00-05	Radiological exposure pathways for DOE operations have not been fully assessed or documented with an adequate technical basis.	16-17
PORTS-INV-00-06	Effective implementation of PORTS environmental programs has been limited by weaknesses in identification and communication of environmental requirements, insufficient numbers of professional environmental staff, and technical errors in analyses and reports.	17-19
PORTS-INV-00-07	The Bechtel Jacobs ISMS supplement, which specifies elements and requirements on how to plan and execute work, is not effectively implemented at the working level.	27-30
PORTS-INV-00-08	Procedures are not always adequately developed, implemented and controlled as specified in the SAR and TSRs.	31-33
PORTS-INV-00-09	Bechtel Jacobs has not implemented an effective readiness assessment process, as stated in the ISMS supplement.	33-34
PORTS-INV-00-10	Incomplete radiological characterization of the workplace adversely affects the radiological control organization's ability to identify hazards and institute controls necessary to ensure consistent and appropriate radiological protection for workers.	34-35
PORTS-INV-00-11	There is a lack of rigor, formality, and discipline in the development, maintenance, and implementation of the Bechtel Jacobs radiation protection program that impacts effective control of the hazards associated with radiological work.	35-37
PORTS-INV-00-12	The PORTS radiological air sampling program does not fully support the detection and evaluation of either the level or the concentration of airborne radioactive material at work locations.	37-38
PORTS-INV-00-13	Occupational safety and health hazards are not adequately identified or analyzed prior to performing work, resulting in increased risk of injury and illness to workers.	39-41
PORTS-INV-00-14	Effective safety programs have not been implemented in hazard communications, ergonomics, confined spaces, air sampling for hazardous chemicals, occupational noise and hearing conservation, bloodborne pathogens, and facility emergency response.	41-42
PORTS-INV-00-15	Bechtel Jacobs and its subcontractors do not effectively implement some occupational health requirements.	42-43
PORTS-INV-00-16	OR has not conducted effective oversight of ES&H or ensured that Bechtel Jacobs and its subcontractors effectively implement all applicable DOE and regulatory requirements.	46-49
PORTS-INV-00-17	Bechtel Jacobs oversight of ES&H performance has not been effective in ensuring that subcontractors properly implement all required DOE and Federal regulations.	49-51

APPENDIX B

TEAM COMPOSITION

To reflect the investigation team's overall mission of determining whether historical ES&H activities and practices were consistent with the knowledge, standards, and local requirements applicable at the time and whether current work practices for DOE-controlled areas of PORTS are sufficient to protect workers, the public, and the environment, investigation activities were organized into two groups: management and worker safety, and environmental management. Each group was composed of a group leader and individual members with relevant expertise. Each group developed lines of inquiry that guided the evaluation scope of interest for that group.

The team composition and areas of responsibility are shown below.

Senior Manager

S. David Stadler, Ph.D.

Team Leader

Patricia Worthington, Ph.D.

Management and Worker Safety Group

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Marvin Mielke, RN, MSN
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Environmental Management Group

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Quality Review Board

S. David Stadler, Ph.D.
Raymond Hardwick
Frank Russo
Thomas Staker

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CHMM – Certified Hazardous Materials Manager
CHP – Certified Health Physicist
CIH – Certified Industrial Hygienist
CPG – Certified Professional Geologist
CSP – Certified Safety Professional
MSN – Master of Science in Nursing
PE – Professional Engineer
REM – Registered Environmental Manager
RG – Registered Geologist
RN – Registered Nurse

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Abbreviations Used in This Report

AEC	Atomic Energy Commission
ALARA	As Low As Reasonably Achievable
ANSI	American National Standards Institute
CFR	Code of Federal Regulations
CIP	Cascade Improvement Program
CPT	Cone Penetrometer Test
CUP	Cascade Upgrading Program
DAC	Derived Air Concentration
DCG	Derived Concentration Guide
DMSA	DOE Material Storage Area
DOE	U.S. Department of Energy
D&D	Decontamination and Decommissioning
EH	Office of Environment, Safety and Health
EMP	Environmental Monitoring Plan
EPA	Environmental Protection Agency
ERDA	Energy Research and Development Administration
ES&H	Environment, Safety, and Health
GAO	Government Accounting Office
HF	Hydrogen Fluoride or Hydrofluoric Acid
ISMS	Integrated Safety Management System
JHA	Job Hazard Analysis
LDB	Legionnaire's Disease Bacteria
LLW	Low-level Waste
MCL	Maximum Contaminant Level
MDA	Minimum Detectable Activity
MSDS	Material Safety Data Sheet
NCRP	National Committee on Radiation Protection and Measurement
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NIOSH	National Institute of Occupational Safety and Health
NPDES	National Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission
OCAW	Oil, Chemical, and Atomic Workers (Union)
OR	Oak Ridge Operations Office
OSHA	Occupational Safety and Health Administration
PAL	Plant Allowable Limit
PCB	Polychlorinated Biphenyl
PORTS	Portsmouth Gaseous Diffusion Plant
P/QA	Performance and Quality Assurance (Department)
RCG	Recommended Concentration Guide
RCRA	Resource Conservation and Recovery Act
RCW	Recirculating Cooling Water
RFI	RCRA Feasibility Investigation
RPG	Radiation Protection Guide
RWP	Radiation Work Permit
SOMC	Southern Ohio Medical Center
TCE	Trichloroethene
TLD	Thermoluminescent Dosimeter
TSCA	Toxic Substances Control Act
TSR	Technical Safety Requirement
UF₆	Uranium Hexafluoride
UNH	Uranyl Nitrate Hexahydrate
UPGWA	United Plant Guard Workers of America
USEC	United States Enrichment Corporation
USQ	Unreviewed Safety Question
VOC	Volatile Organic Compound